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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/015,386	12/12/2001	Kevin P. Baker	GNE.2830P1C55	9794

30313 7590 05/10/2004

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EXAMINER	
LANDSMAN, ROBERT S	

ART UNIT	PAPER NUMBER
1647	

DATE MAILED: 05/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/015,386	BAKER ET AL.	
	Examiner	Art Unit	
	Robert Landsman	1647	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 28-47 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 28-47 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 12 December 2001 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: Sequence Comparisons A and B.

DETAILED ACTION

1. Formal Matters

A. The Preliminary Amendment dated 12/12/01, has been entered into the record.

B. Claims 28-47 are pending and are the subject of this Office Action.

2. Priority

Due to the excessive number of applications from which the present application claims benefit, priority cannot be determined. If Applicants are relying on a parent application in any argument, it is incumbent upon the applicant to provide the serial number and specific page number(s) of any parent application filed prior to the present application which specifically supports the particular claim limitation for each and every claim limitation in all the pending claims which applicant considers to have been in possession of and fully enabled for prior to 12/12/01.

3. Specification

A. Though none could be found, due to the length of the specification, Applicants are reminded that embedded hyperlink and/or other form of browser-executable code are not permitted in the specification. See MPEP § 608.01.

B. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The title recites polypeptides and polynucleotides whereas the claims are drawn to polynucleotides.

C. The specification is objected to since the status of application 09/380,137 should be updated to "now abandoned."

4. Claim Objections

A. The syntax of claims 28-47 could be improved by replacing the phrase "shown in Figure 130 (SEQ ID NO:227)" with "of SEQ ID NO:227" and "shown in Figure 129 (SEQ ID NO:226)" with "of SEQ ID NO:226" where appropriate.

5. Claim Rejections - 35 USC § 112, first paragraph - enablement

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

A. Claims 28-47 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The deposit of the biological material is considered necessary for the enablement of the current invention (see MPEP Chapter 2400 and 37 C.F.R. §§ 1.801-1.809). Elements required for practicing a claimed invention must be known and readily available to the public or obtainable by a repeatable method set forth in the specification. If a deposit (203269) is made under the terms of the Budapest Treaty on the International Recognition of the Deposit of Microorganisms for the Purposes of Patent Procedure (e.g. see 961 OG 21, 1977), and Applicants, their assignee or their agent needs to provide a declaration containing the following:

1. the current address of the ATCC.
2. a declaration, or statement over attorney's signature stating that all restrictions imposed by the depositor on the availability to the public of the deposited biological material be irrevocably removed upon the granting of the patent (see MPEP Chapter 2410.01 and 37 C.F.R. § 1.808.

B. Furthermore, even if a deposit under the Budapest Treaty were made, claims 28-47 would still be rejected under 35 USC 112, first paragraph, because the specification, while then being enabling for SEQ ID NO:226 and 227, does not reasonably provide enablement for polynucleotides or polypeptides having at least 80%, 85%, 90%, 95% or 99% sequence identity to SEQ ID NO:226 or 227, to the protein encoded by ATCC No. 203269, for the extracellular domain thereof, or for vectors and host cells containing these polynucleotides. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims. There is no functional limitation in the claims. The claims encompass an unreasonable number of inoperative polypeptides, or polynucleotides which encode these polypeptides, which the skilled artisan would not know how to use.

There are no working examples of polynucleotides or polypeptides less than 100% identical to SEQ ID NO:226 or 227, or the mature form thereof (i.e. lacking its signal peptide). The skilled artisan would not know how to use non-identical polypeptides or polynucleotides on the basis of teachings in the

prior art or specification unless they possessed a specific function disclosed in the instant specification, in which there is none. While the specification generally describes homologous proteins, Applicants still have not taught to which family of proteins the protein of the present invention belongs. The specification does not provide guidance for using polynucleotides encoding polypeptides related to (*i.e.,* 80%-99% identity) but not identical to SEQ ID NO:226 or 227 which do not have any specific, known function. The claims are broad because they do not require the claimed polypeptide to be identical to the disclosed sequence and because the claims have no functional limitation.

For these reasons, which include the complexity and unpredictability of the nature of the invention and art in terms of the diversity of proteins and lack of knowledge about function(s) of encompassed polypeptides structurally related to SEQ ID NO:227, or their encoding polynucleotides (e.g. SEQ ID NO:226) the lack of direction or guidance for using polypeptides that are not identical to SEQ ID NO:227, and the breadth of the claims for structure without function, it would require undue experimentation to use the invention commensurate in scope with the claims.

6. Claim Rejections - 35 USC § 112, first paragraph – written description

A. Claims 28-47 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claims are drawn to polynucleotides having at least 80%, 85%, 90%, 95% or 99% sequence identity with SEQ ID NO:226 as well as vectors and host cells. The claims do not require that the polynucleotides or encoded polypeptides of the present invention possess any particular biological activity, nor any particular conserved structure, or other disclosed distinguishing feature. Thus, the claims are drawn to a genus of polypeptides that is defined only by sequence identity.

To provide adequate written description and evidence of possession of a claimed genus, the specification must provide sufficient distinguishing identifying characteristics of the genus. The factors to be considered include disclosure of compete or partial structure, physical and/or chemical properties, functional characteristics, structure/function correlation, methods of making the claimed product, or any combination thereof. In this case, the only factor present in the claim is a partial structure in the form of a recitation of percent identity. There is not even identification of any particular portion of the structure that must be conserved. Accordingly, in the absence of sufficient recitation of distinguishing identifying characteristics, the specification does not provide adequate written description of the claimed genus.

Vas-Cath Inc. v. Mahurkar, 19USPQ2d 1111, clearly states "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession *of the invention*. The invention is, for purposes of the 'written description' inquiry, *whatever is now claimed.*" (See page 1117.) The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." (See *Vas-Cath* at page 1116). As discussed above, the skilled artisan cannot envision the detailed chemical structure of the encompassed genus of polypeptides, and therefore conception is not achieved until reduction to practice has occurred, regardless of the complexity or simplicity of the method of isolation. Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method of isolating it. The compound itself is required. See *Fiers v. Revel*, 25 USPQ2d 1601 at 1606 (CAFC 1993) and *Amgen Inc. v. Chugai Pharmaceutical Co. Ltd.*, 18 USPQ2d 1016.

One cannot describe what one has not conceived. See *Fiddes v. Baird*, 30 USPQ2d 1481 at 1483. In *Fiddes*, claims directed to mammalian FGF's were found to be unpatentable due to lack of written description for that broad class. The specification provided only the bovine sequence.

Therefore, only isolated polypeptides comprising the amino acid sequence set forth in SEQ ID NO:227, or encoded by SEQ ID NO:226, but not the full breadth of the claims, meets the written description provision of 35 U.S.C. §112, first paragraph. Applicant is reminded that *Vas-Cath* makes clear that the written description provision of 35 U.S.C. §112 is severable from its enablement provision (see page 1115).

7. Claim Rejections - 35 USC § 112, second paragraph

> The following is a quotation of the second paragraph of 35 U.S.C. 112:
>
> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 28-47 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A. Claims 28-47 are vague and indefinite since it is not clear whether or not the protein encoded by the polynucleotide of the present invention is a soluble protein (e.g protease), nor is it disclosed as being expressed on a cell surface. Accordingly, the limitation that the claimed protein comprises an "extracellular domain" is indefinite, as the art does not recognize soluble proteins as having such domains. Further, if the protein had an extracellular domain, the recitation of "the extracellular

domain"..."lacking its associated signal sequence" is indefinite as a signal sequence is not generally considered to be part of an extracellular domain, as signal sequences are cleaved from said domains in the process of secretion from the cell.

B. Claims 41-43 are vague and indefinite since the claim recites "hybridizes" without the recitation of any conditions, or recites "stringent conditions: wherein these conditions are not known. Nucleic acid molecules which hybridize under conditions of "low" stringency would not necessarily hybridize under conditions of "high" stringency. Furthermore, not all conditions of "high" or "low" stringency, for example, are the same. Therefore, it is required that Applicants amend the claims to recite the exact hybridization conditions without using indefinite phrases such as "*for example*" **without adding new matter**.

8. Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

A. Claims 28-47 are rejected under 35 U.S.C. 102(b) as being anticipated by Lal et al. (U.S. Patent No. 5,932,442). The claims recite a polynucleotide at least 80% identical to that of SEQ ID NO:226 or encoding SEQ ID NO:227, as well as fragments (e.g. extracellular domains, with and without signal sequences) thereof. The amino acids encoding the extracellular domain of this protein are not known. The claims also recite nucleic acid molecules which hybridize to SEQ ID NO:226, or one encoding SEQ ID NO:227 as well as vectors and host cells. Lal teach a polynucleotide which is 50.8% identical to SEQ ID NO:226 (Sequence Comparison A) and which encodes the polypeptide which is 59.4% identical to SEQ ID NO:227 (Sequence Comparison B) as well as vectors and host cells (Examples IX – columns 49-50). This nucleic acid molecule will hybridize to that of the present invention even under the most stringent conditions. Since the length of the extracellular domain is not known, it is believed, in the absence of evidence to the contrary, that the limitations of "at least 80%" are met.

11. Conclusion

A. No claim is allowable.

Advisory information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Landsman whose telephone number is (571) 272-0888. The examiner can normally be reached on Monday - Friday from 8:00 AM to 5:00 PM (Eastern time) and alternate Fridays from 8:00 AM to 5:00 PM (Eastern time).

If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Gary Kunz, can be reached on (571) 272-0887.

Official papers filed by fax should be directed to (703) 872-9306. Fax draft or informal communications with the examiner should be directed to (571) 273-0888.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-0700.

Robert Landsman, Ph.D.
Patent Examiner
Group 1600
May 07, 2004

ROBERT LANDSMAN
PATENT EXAMINER

Sequence Comparison A

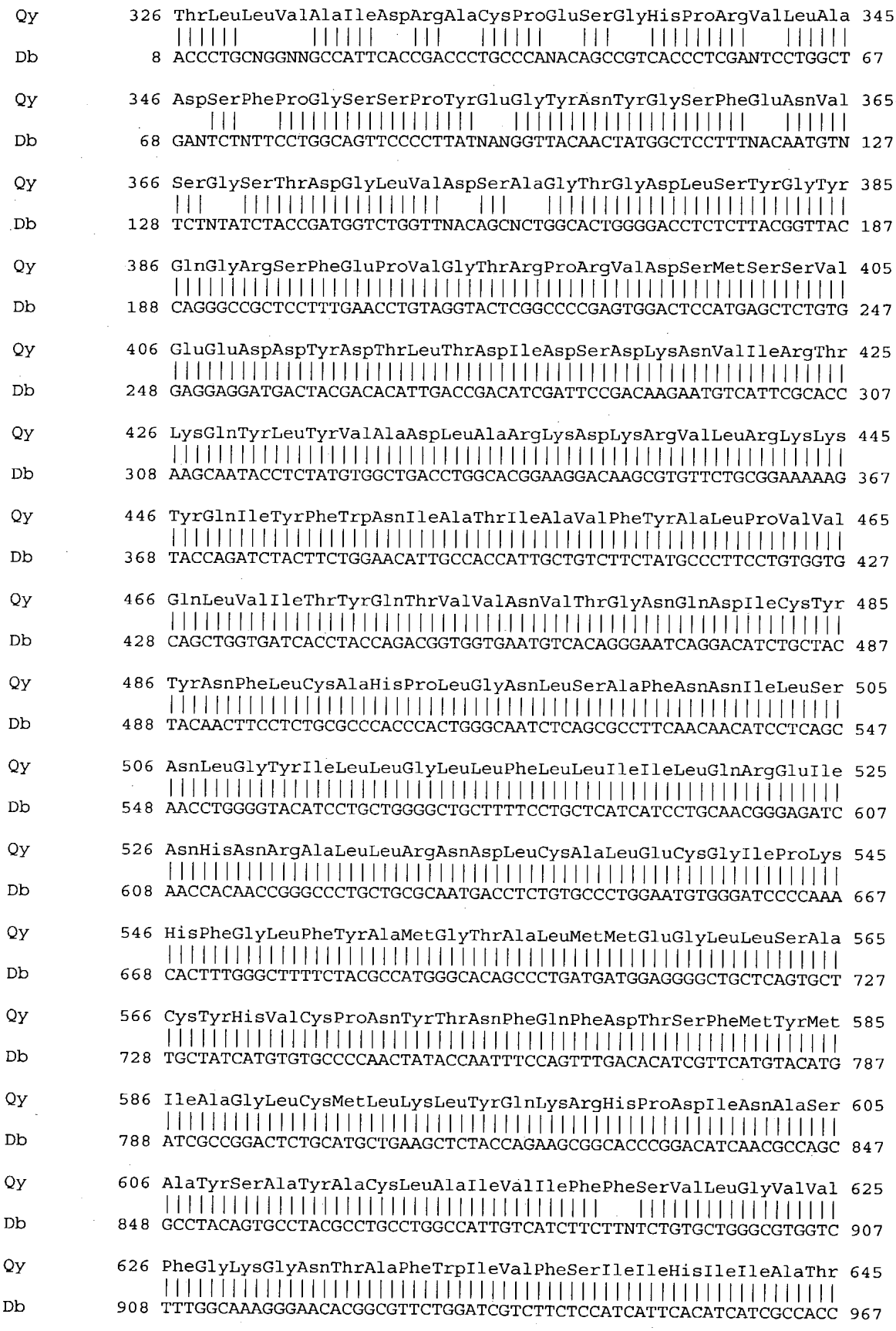
Sequence 73, Application US/08933750C
; Patent No. 5932442
; GENERAL INFORMATION:
; APPLICANT: Lal, Preeti
; APPLICANT: Hillman, Jennifer L.
; APPLICANT: Bandman, Olga
; APPLICANT: Shah, Purvi
; APPLICANT: Au-Young, Janice
; APPLICANT: Yue, Henry
; APPLICANT: Guegler, Karl J.
; APPLICANT: Corley, Neil C.
; TITLE OF INVENTION: HUMAN REGULATORY MOLECULES
; NUMBER OF SEQUENCES: 98
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Incyte Pharmaceuticals, Inc.
; STREET: 3174 Porter Drive
; CITY: Palo Alto
; STATE: CA
; COUNTRY: USA
; ZIP: 94304
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Diskette
; COMPUTER: IBM Compatible
; OPERATING SYSTEM: DOS
; SOFTWARE: FastSEQ for Windows Version 2.0
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/933,750C
; FILING DATE: September 23, 1997
; CLASSIFICATION: 536
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER:
; FILING DATE:
; ATTORNEY/AGENT INFORMATION:
; NAME: Billings, Lucy J.
; REGISTRATION NUMBER: 36,749
; REFERENCE/DOCKET NUMBER: PF-0356 US
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 415-855-0555
; TELEFAX: 415-845-4166
; TELEX:
; INFORMATION FOR SEQ ID NO: 73:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 2028 base pairs
; TYPE: nucleic acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; IMMEDIATE SOURCE:
; LIBRARY: UTRSNOT05
; CLONE: 1568361
US-08-933-750C-73

Alignment Scores:

Pred. No.:	1.33e-303	Length:	2028
Score:	2585.00	Matches:	492
Percent Similarity:	97.04%	Conservative:	0
Best Local Similarity:	97.04%	Mismatches:	15
Query Match:	59.45%	Indels:	0
DB:	2	Gaps:	0

US-10-012-121A-227 (1-832) x US-08-933-750C-73 (1-2028)

A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Qy 346 AspSerPheProGlySerSerProTyrGluGlyTyrAsnTyrGlySerPheGluAsnVal 365
Db 68 GANTCTNTTCCTGGCAGTTCCCCTTATNANGGTTACAACTATGGCTCCTTTNACAATGTN 127
Qy 366 SerGlySerThrAspGlyLeuValAspSerAlaGlyThrGlyAspLeuSerTyrGlyTyr 385
Db 128 TCTNTATCTACCGATGGTCTGGTTNACAGCNCTGGCACTGGGGACCTCTCTTACGGTTAC 187
Qy 386 GlnGlyArgSerPheGluProValGlyThrArgProArgValAspSerMetSerSerVal 405
Db 188 CAGGGCCGCTCCTTTGAACCTGTAGGTACTCGGCCCCGAGTGGACTCCATGAGCTCTGTG 247
Qy 406 GluGluAspAspTyrAspThrLeuThrAspIleAspSerAspLysAsnValIleArgThr 425
Db 248 GAGGAGGATGACTACGACACATTGACCGACATCGATTCCGACAAGAATGTCATTCGCACC 307
Qy 426 LysGlnTyrLeuTyrValAlaAspLeuAlaArgLysAspLysArgValLeuArgLysLys 445
Db 308 AAGCAATACCTCTATGTGGCTGACCTGGCACGGAAGGACAAGCGTGTTCTGCGGAAAAAG 367
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Db 368 TACCAGATCTACTTCTGGAACATTGCCACCATTGCTGTCTTCTATGCCCTTCCTGTGGTG 427
Qy 466 GlnLeuValIleThrTyrGlnThrValValAsnValThrGlyAsnGlnAspIleCysTyr 485
Db 428 CAGCTGGTGATCACCTACCAGACGGTGGTGAATGTCACAGGGAATCAGGACATCTGCTAC 487
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Qy 506 AsnLeuGlyTyrIleLeuLeuGlyLeuLeuPheLeuLeuIleIleLeuGlnArgGluIle 525
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Qy 626 PheGlyLysGlyAsnThrAlaPheTrpIleValPheSerIleIleHisIleIleAlaThr 645
Db 908 TTTGGCAAAGGGAACACGGCGTTCTGGATCGTCTTCTCCATCATTCACATCATCGCCACC 967

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Qy        666 ArgArgIleLeuHisValLeuTyrThrAspCysIleArgGlnCysSerGlyProLeuTyr 685
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Qy        686 ValAspArgMetValLeuLeuValMetGlyAsnValIleAsnTrpSerLeuAlaAlaTyr 705
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Qy        726 LeuLeuLeuTyrPheAlaPheTyrIleIleMetLysLeuArgSerGlyGluArgIleLys 745
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Qy        746 LeuIleProLeuLeuCysIleValCysThrSerValValTrpGlyPheAlaLeuPhePhe 765
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Qy        766 PhePheGlnGlyLeuSerThrTrpGlnLysThrProAlaGluSerArgGluHisAsnArg 785
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Db       1508 CGGGACAAGATCTATGTCTTC 1528
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; Sequence 73, Application US/08933750C
; Patent No. 5932442
; CLONE: 1568361
US-08-933-750C-73

Sequence Comparison B

Query Match 50.8%; Score 1999.4; DB 2; Length 2028;
Best Local Similarity 98.8%; Pred. No. 0;
Matches 2003; Conservative 0; Mismatches 25; Indels 0; Gaps 0;

```
Qy       1019 GAAGAAGACCCTGCTGGTGGCCATTGACCGAGCCTGCCCAGAAAGCGGTCACCCTCGAGT 1078
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              |||||||| ||| |||||||||||||||||| | ||||||||||||||||||||  |
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             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       301 TCGCACCAAGCAATACCTCTATGTGGCTGACCTGGCACGGAAGGACAAGCGTGTTCTGCG 360

Qy      1379 GAAAAAGTACCAGATCTACTTCTGGAACATTGCCACCATTGCTGTCTTCTATGCCCTTCC 1438
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       361 GAAAAAGTACCAGATCTACTTCTGGAACATTGCCACCATTGCTGTCTTCTATGCCCTTCC 420

Qy      1439 TGTGGTGCAGCTGGTGATCACCTACCAGACGGTGGTGAATGTCACAGGGAATCAGGACAT 1498
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       421 TGTGGTGCAGCTGGTGATCACCTACCAGACGGTGGTGAATGTCACAGGGAATCAGGACAT 480

Qy      1499 CTGCTACTACAACTTCCTCTGCGCCCACCCACTGGGCAATCTCAGCGCCTTCAACAACAT 1558
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       481 CTGCTACTACAACTTCCTCTGCGCCCACCCACTGGGCAATCTCAGCGCCTTCAACAACAT 540

Qy      1559 CCTCAGCAACCTGGGGGTACATCCTGCTGGGGCTGCTTTTCCTGCTCATCATCCTGCAACG 1618
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       541 CCTCAGCAACCTGGGGGTACATCCTGCTGGGGCTGCTTTTCCTGCTCATCATCCTGCAACG 600

Qy      1619 GGAGATCAACCACAACCGGGCCCTGCTGCGCAATGACCTCTGTGCCCTGGAATGTGGGAT 1678
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       601 GGAGATCAACCACAACCGGGCCCTGCTGCGCAATGACCTCTGTGCCCTGGAATGTGGGAT 660

Qy      1679 CCCCAAACACTTTGGGCTTTTCTACGCCATGGGCACAGCCCTGATGATGGAGGGGCTGCT 1738
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       661 CCCCAAACACTTTGGGCTTTTCTACGCCATGGGCACAGCCCTGATGATGGAGGGGCTGCT 720

Qy      1739 CAGTGCTTGCTATCATGTGTGCCCCAACTATACCAATTTCCAGTTTGACACATCGTTCAT 1798
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       721 CAGTGCTTGCTATCATGTGTGCCCCAACTATACCAATTTCCAGTTTGACACATCGTTCAT 780

Qy      1799 GTACATGATCGCCGGACTCTGCATGCTGAAGCTCTACCAGAAGCGGCACCCGGACATCAA 1858
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       781 GTACATGATCGCCGGACTCTGCATGCTGAAGCTCTACCAGAAGCGGCACCCGGACATCAA 840

Qy      1859 CGCCAGCGCCTACAGTGCCTACGCCTGCCTGGCCATTGTCATCTTCTTCTCTGTGCTGGG 1918
             |||||||||||||||||||||||||||||||||||||||||||||||| ||||||||||||
Db       841 CGCCAGCGCCTACAGTGCCTACGCCTGCCTGGCCATTGTCATCTTCTTNTCTGTGCTGGG 900

Qy      1919 CGTGGTCTTTGGCAAAGGGAACACGGCGTTCTGGATCGTCTTCTCCATCATTCACATCAT 1978
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       901 CGTGGTCTTTGGCAAAGGGAACACGGCGTTCTGGATCGTCTTCTCCATCATTCACATCAT 960

Qy      1979 CGCCACCCTGCTCCTCAGCACGCAGCTCTATTACATGGGCCGGTGGAAACTGGACTCGGG 2038
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       961 CGCCACCCTGCTCCTCAGCACGCAGCTCTATTACATGGGCCGGTGGAAACTGGACTCGGG 1020

Qy      2039 GATCTTCCGCCGCATCCTCCACGTGCTCTACACAGACTGCATCCGGCAGTGCAGCGGGCC 2098
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1021 GATCTTCCGCCGCATCCTCCACGTGCTCTACACAGACTGCATCCGGCAGTGCAGCGGGCC 1080

Qy      2099 GCTCTACGTGGACCGCATGGTGCTGCTGGTCATGGGCAACGTCATCAACTGGTCGCTGGC 2158
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1081 GCTCTACGTGGACCGCATGGTGCTGCTGGTCATGGGCAACGTCATCAACTGGTCGCTGGC 1140
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Qy       2159 TGCCTATGGGCTTATCATGCGCCCCAATGATTTCGCTTCCTACTTGTTGGCCATTGGCAT 2218
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1141 TGCCTATGGGCTTATCATGCGCCCCAATGATTTCGCTTCCTACTTGTTGGCCATTGGCAT 1200

Qy       2219 CTGCAACCTGCTCCTTTACTTCGCCTTCTACATCATCATGAAGCTCCGGAGTGGGGAGAG 2278
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1201 CTGCAACCTGCTCCTTTACTTCGCCTTCTACATCATCATGAAGCTCCGGAGTGGGGAGAG 1260

Qy       2279 GATCAAGCTCATCCCCCTGCTCTGCATCGTTTGCACCTCCGTGGTCTGGGGCTTCGCGCT 2338
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1261 GATCAAGCTCATCCCCCTGCTCTGCATCGTTTGCACCTCCGTGGTCTGGGGCTTCGCGCT 1320

Qy       2339 CTTCTTCTTCTTCCAGGGACTCAGCACCTGGCAGAAAACCCCTGCAGAGTCGAGGGAGCA 2398
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1321 CTTCTTCTTCTTCCAGGGACTCAGCACCTGGCAGAAAACCCCTGCAGAGTCGAGGGAGCA 1380

Qy       2399 CAACCGGGACTGCATCCTCCTCGACTTCTTTGACGACCACGACATCTGGCACTTCCTCTC 2458
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1381 CAACCGGGACTGCATCCTCCTCGACTTCTTTGACGACCACGACATCTGGCACTTCCTCTC 1440

Qy       2459 CTCCATCGCCATGTTCGGGTCCTTCCTGGTGTTGCTGACACTGGATGACGACCTGGATAC 2518
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1441 CTCCATCGCCATGTTCGGGTCCTTCCTGGTGTTGCTGACACTGGATGACGACCTGGATAC 1500

Qy       2519 TGTGCAGCGGGACAAGATCTATGTCTTCTAGCAGGAGCTGGGCCCTTCGCTTCACCTCAA 2578
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1501 TGTGCAGCGGGACAAGATCTATGTCTTCTAGCAGGAGCTGGGCCCTTCGCTTCACCTCAA 1560

Qy       2579 GGGGCCCTGAGCTCCTTTGTGTCATAGACCGGTCACTCTGTCGTGCTGTGGGGATGAGTC 2638
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1561 GGGGCCCTGAGCTCCTTTGTGTCATAGACCGGTCACTCTGTCGTGCTGTGGGGATGAGTC 1620

Qy       2639 CCAGCACCGCTGCCCAGCACTGGATGGCAGCAGGACAGCCAGGTCTAGCTTAGGCTTGGC 2698
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1621 CCAGCACCGCTGCCCAGCACTGGATGGCAGCAGGACAGCCAGGTCTAGCTTAGGCTTGGC 1680

Qy       2699 CTGGGACAGCCATGGGGTGGCATGGAACCTTGCAGCTGCCCTCTGCCGAGGAGCAGGCCT 2758
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1681 CTGGGACAGCCATGGGGTGGCATGGAACCTTGCAGCTGCCCTCTGCCGAGGAGCAGGCCT 1740

Qy       2759 GCTCCCCTGGAACCCCCAGATGTTGGCCAAATTGCTGCTTTCTTCTCAGTGTTGGGGCCT 2818
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1741 GCTCCCCTGGAACCCCCAGATGTTGGCCAAATTGCTGCTTTCTTCTCAGTGTTGGGGCCT 1800

Qy       2819 TCCATGGGCCCCTGTCCTTTGGCTCTCCATTTGTCCCTTTGCAAGAGGAAGGATGGAAGG 2878
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1801 TCCATGGGCCCCTGTCCTTTGGCTCTCCATTTGTCCCTTTGCAAGAGGAAGGATGGAAGG 1860

Qy       2879 GACACCCTCCCCATTTCATGCCTTGCATTTTGCCCGTCCTCCTCCCCCACAATGCCCCAGC 2938
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1861 GACACCCTCCCCATTTCATGCCTTGCATTTTGCCCGTCCTCCTCCCCCACAATGCCCCAGC 1920

Qy       2939 CTGGGACCTAAGGCCTCTTTTTCCTCCCATACTCCCACTCCAGGGCCTAGTCTGGGGCCT 2998
             ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1921 CTGGGACCTAAGGCCTCTTTTTCCTCCCATACTCCCACTCCAGGGCCTAGTCTGGGGCCT 1980

Qy       2999 GAATCTCTGTCCTGTATCAGGGCCCCAGTTCTCTTTGGGCTGTCCCTG 3046
             ||||||||||||||||||||||||||||||||||||||||||||||||
Db       1981 GAATCTCTGTCCTGTATCAGGGCCCCAGTTCTCTTTGGGCTGTCCCTG 2028
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